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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,071	10/06/2003	Cheol Ho Hwang	27427.012.00-US	4083
30827	7590	05/03/2005		EXAMINER
				KEANEY, ELIZABETH MARIE
			ART UNIT	PAPER NUMBER
				2882

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/678,071	HWANG ET AL.
Examiner	Art Unit	
Elizabeth Keaney	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 06 October 2003.  
 2a) This action is FINAL.                            2b) This action is non-final. /  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-25 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 1,2 and 4-12 is/are allowed.  
 6) Claim(s) 13,18-21 and 23-25 is/are rejected.  
 7) Claim(s) 3,14-17 and 22 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 06 October 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 10/6/03.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date: \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Korea on 27 January 2003. It is noted, however, that applicant has not filed a certified copy of the 2003-5368 application as required by 35 U.S.C. 119(b).

### ***Drawings***

The drawings are objected to because figures 8-16 are missing from the disclosure. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a ratio of a vertical size to a horizontal size of an electron beam passing hole on the first electrode must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Information Disclosure Statement***

The information disclosure statement filed 6 October 2003 fails provide a copy of the foreign patent documents as required by 37 CFR 1.98(a)(2). The documents that

are properly listed have been considered but the foreign documents having no copies of record have been lined through and the information referred to has not been considered. Copies of the cited foreign patent documents were not provided. See attached information disclosure statement.

### ***Specification***

The disclosure is objected to because of the following informalities:

- Page 13, paragraph 73: This paragraph begins to recite the ratio of the electron beam passion hole to be defined as vertical to horizontal. However, halfway through the paragraph (lines 5-10) it is reversed to horizontal to vertical without further explanation. It appears that when the ratio is stated as horizontal to vertical, it is intended as vertical to horizontal.

Appropriate correction is required.

### ***Claim Objections***

Claims 2,16 and 17 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. All three claims recite the ratio of electron beam passing hole to be horizontal to vertical. However, the

claims from which they depend recite the ratio to be vertical to horizontal. On page 11, paragraph 58, line 6, the specification recites the ratio to be vertical to horizontal and has been interpreted as such.

Claims 3,13 and 16 are objected to because of the following informalities:

- Claim 3, line 2: "second electrode is great than a horizontal size of the hole"; should be --second electrode is greater than a horizontal size of the second electrode hole--.
- Claim 13, line 12: "horizontal size"; should be --horizontal size of the first electrode--.
- Claim 16, line 2: "about 1.5"; should be --greater than 1.5--. The Examiner notes that claim 16 is dependent on claim 14 which cites that the range is greater than 1.5.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,3-13 and 18-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Song et al. (Korean Patent 2002-0057585; hereinafter Song). The Examiner notes that all further annotations to the reference are drawn to the English translation of Song.

Re claim 1: Song discloses, in figure 6 and throughout the disclosure, a cathode ray tube with an electron gun comprising:

- a triode portion (51) having a cathode;
- first and second electrodes (52,53) for controlling and accelerating electron beams emitted from the cathode; and
- a plurality of focus electrodes (54-58) for focusing the electron beams;
  - wherein a ratio of a vertical size to a horizontal size of an electron beam passing hole on the first electrode ranges from 1.5-4.3 (page 9, paragraph 4, line 3).

Re claim 13: Song discloses, in figures 4-6 and throughout the disclosure, a cathode ray tube with an electron gun comprising:

- a triode portion having a cathode (51);
- a first electrode (52) for controlling and accelerating electron beams emitted from the cathode with an electron beam passing hole (100) that has a first horizontal (W4) and vertical size (W3) on a first side near the cathode (102) and a second horizontal (W2) and vertical size (W1) on a second side opposite the first side (101);

- a second electrode (53) for controlling and accelerating electron beams emitted from the cathode with an electron beam passing hole that has a third horizontal and vertical size (110'); and
- a plurality of focus electrodes (54-58) for focusing the electron beams;
  - wherein a ratio of the second vertical size (W1) to a second horizontal size (W2) of an electron beam passing hole on the first electrode is greater than a ratio of the first vertical size (W3) to the first horizontal size (W4) (pages 9-10, paragraph 4).

Re claim 3: Song discloses the vertical size of the electron beam passing hole on the second electrode is greater than a horizontal size of the hole of the second electrode (page 10, paragraph 2, lines 5-6).

Re claim 4: Song discloses a ratio of a vertical size to a horizontal size of an electron beam passing hole on the second electrode to be equal to 1.5 (page 10, paragraph 3, lines 1-2).

The Examiner notes that it is implied that the second electrode passage holes are the same size as the first electrode passage holes.

Re claims 5 and 18: Song discloses the electron beam passing hole on the first electrode having a different size on a first side and on a second side, and a ratio of vertical size (W3) to a horizontal size (W4) of the electron beam passing hole on the first

side is less than a ratio of a vertical size (W1) to a horizontal size (W2) of the electron beam passing hole on the second side (pages 9-10, paragraph 4, lines 3-6).

Re claims 6 and 19: Song discloses the triode portion being formed in a manner that the electron beams cross over in a horizontal direction only (page 11, paragraph 1, lines 11-13).

Re claims 7 and 20: Song discloses the electron beam passing hole on the first electrode to be rectangular (page 9, paragraph 3, line 10).

Re claims 8 and 21: Song discloses the electron beam passing hole on the second electrode to be rectangular (page 10, paragraph 2, lines 5-6).

Re claims 9 and 22: Song discloses a vertical size of the electron beam passing hole on the first electrode near the cathode side being greater than or equal to a vertical size of the electron beam passing hole on the second electrode near a third electrode side (page 10, paragraph 2, lines 1-2).

Re claims 10 and 23: Song discloses a dynamic voltage being applied to at least one of the plurality of focus electrodes (page 14, paragraph 3, line 5).

Re claims 11 and 24: Song discloses, in figure 1 and throughout the disclosure, an electron beam passing hole on a third electrode among the plurality of focus electrodes being circular (14H).

Re claims 12 and 25: Song discloses, in figure 4 and throughout the disclosure, the electron beam passing holes on the first and second electrodes being rectangular (100,110'), and an electron beam passing hole on a third electrode is circular (34a).

Claims 13,18-21 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Song et al. (U.S. Patent Application Publication 2002/0101161 A1; hereinafter Song).

Re claims 13 and 18: Song discloses, in figures 4 and 6 and throughout the disclosure, a cathode ray tube with an electron gun comprising:

- a triode portion having a cathode (51);
- a first electrode (32) for controlling and accelerating electron beams emitted from the cathode with an electron beam passing hole that has a first horizontal and vertical size on a first side near the cathode (102) and a second horizontal and vertical size on a second side opposite the first side (101);
- a second electrode (53) for controlling and accelerating electron beams emitted from the cathode with an electron beam passing hole that has a third horizontal and vertical size (110'); and

- a plurality of focus electrodes (54-58) for focusing the electron beams;
  - wherein a ratio of the second vertical size to a second horizontal size of an electron beam passing hole on the first electrode is greater than a ratio of the first vertical size to the first horizontal size of the first electrode (paragraph 43, lines 9-12).

Re claim 19: Song discloses the triode portion being formed in a manner that the electron beams cross over in a horizontal direction only (paragraph 62, lines 3-6).

Re claim 20: Song discloses the electron beam passing hole on the first electrode being rectangular (paragraph 42, line 2).

Re claim 21: Song discloses the electron beam passing hole on the second electrode being rectangular (paragraph 45, lines 4-5).

Re claim 23: Song discloses a dynamic voltage being applied to at least one of the plurality of focus electrodes (paragraph 57, line 5).

Re claim 24: Song discloses, in figure 6 and throughout the disclosure, an electron beam passing hole on a third electrode (54) among the plurality of focus electrodes is circular (54H).

Re claim 25: Song discloses the electron beam passing holes on the first and second electrodes are rectangular (paragraph 42, line 2; paragraph 45, lines 4-5), and an electron beam passing hole on a third electrode is circular (paragraph 53, line 4).

***Allowable Subject Matter***

Should the above objections be overcome, claims 2 and 14-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Re claim 2: The best prior art of record discloses a cathode ray tube with an electron gun comprising a triode portion, first and second controlling electrodes and a plurality of focus electrodes, wherein a ratio of a vertical size of a horizontal size of an electron beam passing hole on the first electrode ranges from 1.5-4.3. However, the prior art fails to teach or fairly suggest a cathode ray tube with an electron gun comprising a first controlling electrode wherein the ratio of the vertical size to the horizontal size of the electron beam passing hole on the first electrode ranges from 1.9-3.0, as claimed in claim 2.

Re claims 14-17: The best prior art of record discloses a cathode ray tube with an electron gun comprising a triode portion, a first electrode for controlling the electron beams with an electron beam passing hole that has a first horizontal and vertical size on a first side near the cathode and a second horizontal and vertical size on a second side opposite the first side, a second electrode for controlling the electron beams with an electron passing hole that has a third horizontal and vertical size, and a plurality of focus electrodes, wherein a ratio of the second vertical size to a second horizontal size of an electron beam passing hole on the first electrode is greater than a ratio of the first vertical size to the first horizontal size. However, the prior art fails to teach or fairly suggest a cathode ray tube with an electron gun comprising a first controlling electrode wherein the ratio of the first vertical size to the first horizontal size is greater than 1.5, as claimed in claim 14. Claims 15-18 are allowable by virtue of their dependency.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

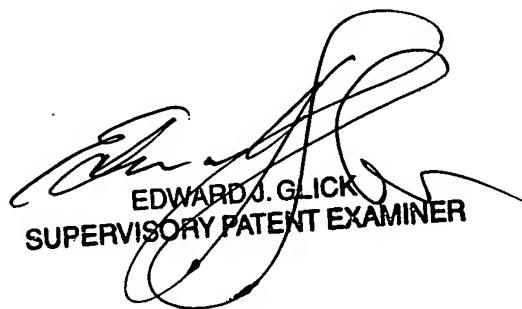
- US Patent 5,747,922 discloses a single focusing electrode having an electron beam passing hole having a ratio of a vertical size to a horizontal size ranging from 1.5-4.3.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Keaney whose telephone number is (571)272-2489. The examiner can normally be reached on Monday-Thursday 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER